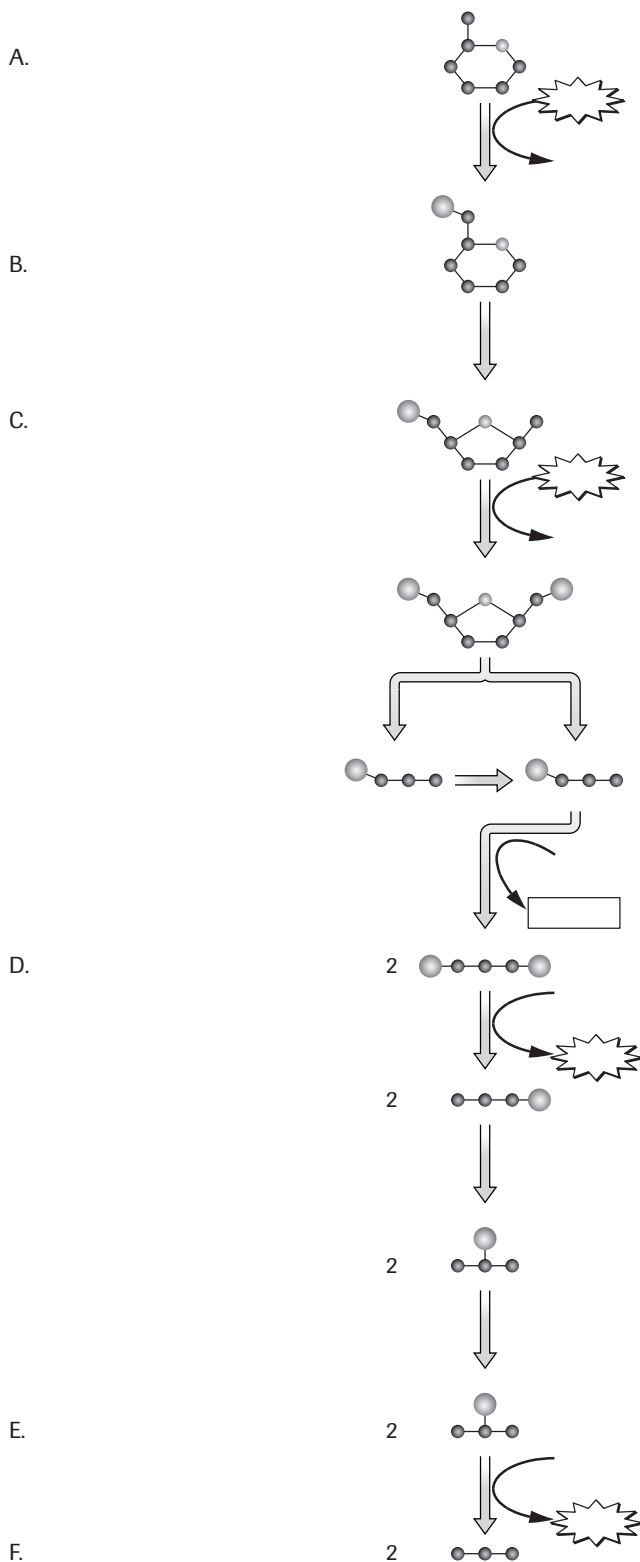


Student Worksheet

Glycolytic Pathway

LSM 2.2-1

Fill in the blanks on the right side of the worksheet and in the steps of glycolysis. Also fill in the molecule names A to E.



1. Glucose Activation

During the first four steps of glycolysis,

_____ are transferred to _____ via _____, where _____ is converted to _____. The end product is _____.

2. Sugar Splitting

_____ gets split into two fragments, _____ and _____. _____ then gets converted into _____.

3. Oxidation

Both molecules of _____ become oxidized using _____, which becomes _____. This process releases _____, which is used to attach _____ to the sugars, making them _____.

4. Formation of ATP

During the last four steps of glycolysis, the _____ groups of the molecules are transferred to _____, creating _____. This is done via the process of _____.

● carbon ● oxygen ● phosphate

Student Worksheet Solutions

Glycolytic Pathway, Solution

LSM 2.2-2

Fill in the blanks on the right side of the worksheet and in the steps of glycolysis. Also fill in the molecule names A to F.

A. glucose

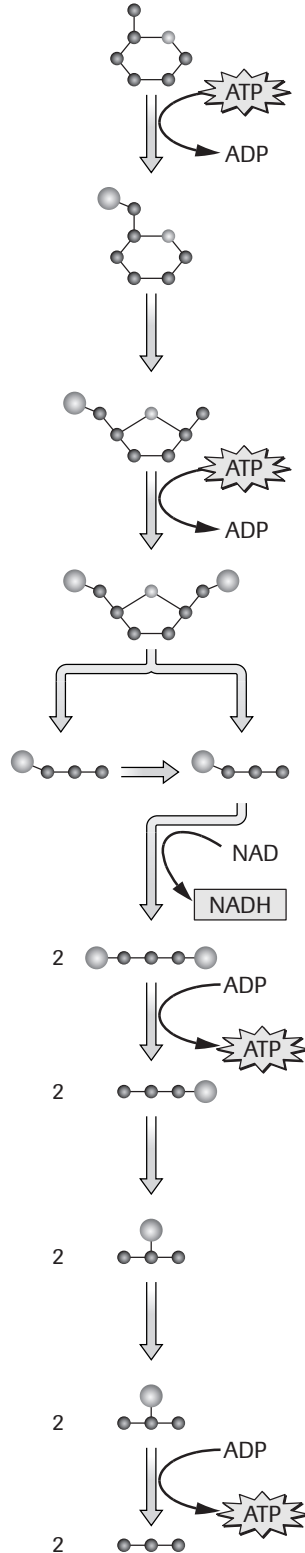
B. glucose 6-phosphate

C. fructose 6-phosphate

D. 1, 3-bisphosphoglycerate

E. phosphoenolpyruvate

F. pyruvate



1. Glucose Activation

During the first four steps of glycolysis, two phosphate groups are transferred to glucose via phosphorylation, where ATP is converted to ADP. The end product is fructose 1, 6-bisphosphate.

2. Sugar Splitting

Fructose 1, 6-bisphosphate gets split into two fragments, dihydroxyacetone phosphate (DHAP) and glyceraldehyde 3-phosphate (G3P). DHAP then gets converted into G3P.

3. Oxidation

Both molecules of G3P become oxidized using NAD, which becomes NADH. This process releases energy, which is used to attach phosphates to the sugars, making them 1, 3-bisphosphoglycerate.

4. Formation of ATP

During the last four steps of glycolysis, the phosphate groups of the molecules are transferred to ADP, creating ATP. This is done via the process of substrate-level phosphorylation.

● carbon ● oxygen ● phosphate